

Acceptance Models for the Analysis of RFID

Markus Haushahn, Michael Amberg,
Armin Schwingenschlögel, Florian Bernhardt
Chair of Information Systems III
University of Erlangen-Nuremberg
Lange Gasse 20, 90403 Nuremberg, Germany
markus.haushahn@wiso.uni-erlangen.de

Krzysztof Malowaniec
Business Development
DATEV eG
Paumgartnerstr. 6-14, 90329 Nuremberg, Germany
krzysztof.malowaniec@datev.de

Abstract—Although there is a high dispersion of RFID in many areas of the economy, it can be said that up until now this technology has been barely implemented and accepted within law firms. Considering the severe problems when tracking documents and although these systems facilitate specific improvement in various sub processes handling legal cases, lawyers are still mostly disapproving of the use of RFID. Therefore, the motivation as well as the acceptance indicators of lawyers, which are responsible for such behavior, need to be observed. Within the scope of this article the currently valid acceptance models will be analyzed regarding their applicability to RFID-Systems and their possible application in law firms. Furthermore, both the user's point of view as well as the involved IT technology shall be considered within this evaluation. This is the only way to ultimately ensure the achievement of pursued objectives such as increasing customer and employee satisfaction, optimizing internal processes as well as continuously improving business results within law firms. The primary result of this analysis shows that the DART acceptance model by Amberg and Wehrmann explains best all eight of the RFID-relevant acceptance levels such as the psychological or the task-related level for instance.

Keywords: *acceptance analysis; RFID; ubiquitous computing*

I. INTRODUCTION

In recent years RFID-technologies have not only caused quite a stir in science but also in many areas of the service sector, purchase and outbound logistics, the industry as well as in manufacturing companies. Hundreds of companies that are actively involved in the development and sale of RFID systems indicate that this market is taken very seriously. While global sales of RFID systems reached about 1.2 billion U.S. dollars in 2008, the forecast for 2012 predicts a sales growth of 3.5 billion U.S. \$ [1]. The market for RFID is therefore one of the fastest growing sectors in the industry of radio technology. In spite of the obvious progress and the expected efficiency and cost potentials, the diffusion rate and therefore the implementation in many sectors as well as in companies is still to be seen as a niche solution [2].

Enhancement in productivity and efficiency are not only practicable in the field of supply chain management but also in many areas of the service sector in terms of a cross-sectional technology [3]. A particular setting for the application of RFID-Systems is the tracking of documents and the administration of books within the scope of the

document management. Especially in the day-to-day handling of documents and books, companies gather a significant amount of data. These vast amounts of documents are often stored in boxes, folders or cabinets and filed in special rooms. In order to find and process stored data additional costs emerge for the company and cause extra time expenses for the employees. Furthermore, this loss of efficiency leads to a waste of human resources and employee productivity decreases [4].

Even today the handling of the so-called "paper files" is still required by law, particularly in law firms and tax attorney offices. According to §50 of the Federal Code for the Legal Profession, it is a lawyer's responsibility to give an orderly insight into his work by creating reference files [5]. However, this legally demanded system is being affected significantly by the in some extent complex procedure of processing a file. If one analyzes the working process of an attorney, this problem can clearly be seen. Depending on the complexity of a lawsuit there are up to eight people sequentially working on one case. Thereby the paper card changes the staff member up to 26 times on average.

If one combines the complexity and diversity of the processing steps in a lawsuit with the number of cases a lawyer has to work on per day, it is clear that a single paper file might get lost easily. However, it is mandatory to have a hardcopy of the document while talking to clients in the office or being in court in order to ensure the possibility of making changes at all times and having a successful legal dispute. Therefore, the loss of a file would be linked to far-reaching consequences for the office and for the client. Particularly affected by this problem are law firms with more than 20 lawyers, which are distributed on different floors and buildings. If at least 5 files a week go missing in a law firm with 20 lawyers and a stock of 700 cases, and the average search time equals 1.5 hours per file, the consequent time spend on searching is at least 7.5 hours a week, which is a serious problem for the efficient work cycle in this office.¹ However, with the help of RFID as a cross-sectional technology, it is possible to improve the workflow of a lawyer and thus the handling of paper files as well as legal texts considerably.

¹ The numbers result from a process analysis carried out for a law firm in Munich.

Although many law firms are aware of these problems and lawyers know that RFID technology could eliminate these deficits, they are still not willing to invest in an innovative technology. The goal of this paper is therefore to analyze the acceptance models for RFID systems in law firms and to identify the factors, which are able to describe the acceptance of RFID technology.

Within the scope of the pilot project “RFID in lawyer’s offices”, the phenomenon of RFID-technologies in the daily use is ought to be analyzed scientifically. Therefore, its distribution in both the literature and in practice, depending on the costs and benefits, need to be assessed in order to assure a holistic implementation with the help of practitioners in the next step. The evaluation of the acceptance is an essential component next to the creation of a business case. This evaluation of the theoretical acceptance models illustrates the first step of the analysis of RFID in lawyer’s offices. Although acceptance models offer diverse possibilities, they only fit partly into the scenario RFID in lawyer’s offices, which is the reason why this evaluation is being carried out. Therefore, the following analysis is ought to indicate to what extent the selected models fit the scenario RFID in lawyer’s offices and thus which practice seems the most suitable.

At the beginning of this paper it is ought to describe the technology of RFID and the main procedure applied in order to carry out the analysis. Thereupon, individual dimensions and indicators are being described and evaluated by experts. In the end, these results are the basis for the decision to use the Dart Model according to Wehrmann.

A. Research Design

The scientific background was provided by a comprehensive literature research being the preliminary stage of the acceptance research area and RFID. **Therefore, 556 articles of the IEEE and 137 German and English books were studied regarding these models. Within the scope of this procedure 10 acceptance models were identified due to their number of mentions.** The main objective, however, is the evaluation of the user acceptance in law firms, which are supported by RFID. The purpose is to create a general understanding for those areas involving RFID and research acceptance. Based on this knowledge it is ought to identify, outline, and monitor existing acceptance models on whether they are suitable for the evaluation of the user acceptance of RFID in law firms. Besides, both the user’s point of view and the underlying IT technology are to be considered within this evaluation and review. **Thus, the second step of the explorative study involved an execution of two workshops. A total of fourteen experts participated in these workshops, which were held half-day in March and April 2010. Four of these participants were employees of the law firm and they were working with this technology constantly, while there were three experts out of science, two experts out of user’s offices,**

and three experts out of the hard- and software industry of RFID-systems (see Figure 1). These persons were chosen as experts since they had a long-time experience and thus a wide knowledge of RFID. Besides, they were trained by using this technology directly within lawyer’s offices. In order to ensure an equal knowledge of the participants and a successful design of the workshops, the required documents were sent out about a week prior to the meeting. Within the scope of the workshop a set of questions was assessed. One of them dealt with the expert’s opinion on how well these models covered the different factors of the individual levels such as the social level, for instance. Therefore, both the interviews as well as the related discourses within the project group made it possible to carry out an evaluation of the individual models. In doing so, individual models were presented, discussed several times, and indicators were chosen and improved. Afterwards the acceptance models were evaluated according to the previously identified indicators. While developing the results, there were three questions being focused on:

1. Which acceptance models are available in the literature?
2. Which of these models suits an analysis of RFID in law firms the best?
3. Which indicators need to be considered by the acceptance model?

The objective of this approach is to generate an adapted model of acceptance, which possesses those indicators adjusted to RFID systems in order to generate an acceptance analysis in a pilot office.

Research Design	Explorative Study	
Iteration	1	2
Research Method	Draft design for the selection of an adequate acceptance model	2 workshops for the selection of an adequate acceptance model
Duration	January- February 10	March-April 10
Number	556 articles (IEEE) & 137 books	14 experts out of science, industry, and user’s area

Figure1. Procedure while analyzing the acceptance of RFID in law firms

B. RFID technology

The abbreviation RFID means Radio Frequency Identification, which could be translated via radio waves for identification. RFID is also commonly described as an automatic identification and data capture system with contactless transmission of data between an RFID tag and RFID reader based on radio frequency technology. If products, pallets, truckloads or documents are being equipped with RFID tags, they can give a feedback signal on their position, motion or texture automatically [6].

RFID has been used for several years and in some areas it is already seen as an important part of the process management. It has established itself, particularly in the area

of production, logistics, theft protection and access security [7]. Recently this technology has gained a foothold in other areas as well. At the moment there are strong efforts in establishing itself in the medical and nutritional area as well as in the field of document management. Since the advantages and disadvantages of this technology have been analyzed more than once in the literature and public, this paper will omit to discuss this matter in detail.

C. Acceptance Models

In recent years, there has been a development towards a new understanding of acceptance research, which is also referred to as the “recent acceptance research” by Kollmann. The following features can illustrate this new perception. [8] p. 149f.

Timeframe: As mentioned previously, the acceptance research is seen traditionally as a study object of various areas of science, which observes the “acceptance” isolated from the rest. This separation is currently not applicable in terms of innovative applications since most technologies (including RFID) are able to establish themselves not only in organizations but also in private households. An integrative perspective counteracts with this isolated observation and summarizes all of the critical factors of the various disciplines [8] p. 149.

Decision criterion: The classic dichotomy of acceptance decision cannot be transferred on innovative applications in general. Especially when it comes to innovative utilization, an acceptance continuum has to be acknowledged. Therefore, business informatics rather prefer gradations between different acceptance levels than a dichotomous notion, since it is being focused on the utilization of the innovation [9].

Utilization motivation: Since products of information technology (such as PCs, notebooks, netbooks, or PDA's), telecommunications (mobile phone, smartphone) and multimedia communications can be used both due to organizational requirements as well as on a voluntary basis, a strict separation of organizational use or voluntary use are not longer appropriate. Therefore, acceptance research and used models must take into account that innovative products have reached both organizations and private households [8] p. 149.

Objective: The traditional point of view considered the acceptance only ex-post. Thus, this approach was used primarily to generate appropriate marketing strategies for already established products and services. As a result no action has been taken in order to detect product deficits and counteract previously to launching. An ex-ante analysis, however, makes it possible to analyze the acceptance at an early stage in order to carry out formative and corrective actions. Therefore, an acceptance analysis, which carries out both, an ex-ante and ex-post analysis, is desirable.

A great amount of acceptance models were developed over the last years in order to analyze the acceptance. Since different research areas have arisen, various assumptions are being made on the main aspects or influential factors, which have a considerable impact on the acceptance [8] p. 150. A short overview of the acceptance models dealt with in this paper is being given in Figure 2. It shows the development of the ten models over time. As a result of the analysis, it could be observed that these models have been specified even more over the periods of time and thus are able to fulfill the demands and application scenarios needed today.

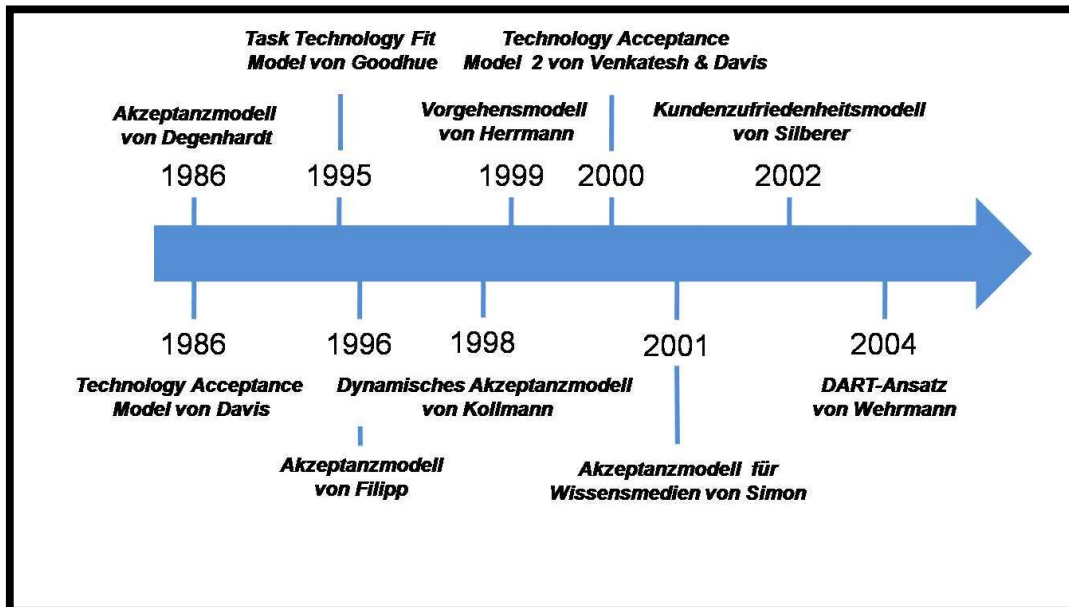


Figure 2. Overview of the relevant acceptance models

Acceptance Models	Influencing Factors/Dimension	Alternative Model
TAM (Davis)	- Perceived benefits - Perceived easy handling	Input-/Output Model
Acceptance Model (Degenhardt)	- Task characteristics - System configuration - User characteristics	Input-/Output Model
TIFM (Goodhue)	- Tasks - Technology - Individual	Input-/Output Model
Acceptance Model (Filipp)	- Organizational environment - User - Technology system (content & user guidance)	Feedback Model
Dynamic Acceptance Model (Kollmann)	- Product-related determinants - Consumer-related determinants - Company-related determinants - Environment-related determinants	Input-/Output Model
Procedure Model (Herrmann)	- Global criteria checklist	Feedback Model
TAM 2 (Venkatesh & Davis)	- Perceived benefits - Perceived easy handling <ul style="list-style-type: none"> • Subjective standard • Image • Job relevance • Output quality • Traceability of the results 	Input-/Output Model
Acceptance Model for Knowledge Media (Simon)	- Knowledge media design - User design	Feedback Model
Customer Satisfaction Model (Silberer et al.)	- Hardware - Transmission costs - Mobile commerce applications	Input-/Output Model
DART Approach (Wehrmann)	- Perceived benefits - Perceived usability - Perceived costs - Perceived amplified benefits	Input-/Output Model with Feedback Character

Figure 3. Influencing factors and dimensions of relevant Acceptance Models

D. Aggregation of the acceptance models

While identifying and analyzing all relevant acceptance models, the most suitable models were selected and their characteristics were observed. Since these differ to some extent fundamentally regarding the factors and dimensions, Figure 3 aggregates all the relevant acceptance models, which affect the attitude and behavior of user acceptance. At the same time a corresponding version of each model is being outlined briefly. Taking the model of Kollman as an example for the other models, it can be shown that indicators related to products, consumers, companies, and the environment, are being considered in this feedback model and therefore facilitate the application for specific scenarios. Likewise these indicators were identified in the other models as well and thus are being subsumed in Figure 3. This figure is therefore the basis for the further progress of this paper. Based on these findings the third section indicates appraisals

of the models concerning their capability of considering the adoption of RFID technology in law firms.

II. ADEQUACY OF ACCEPTANCE MODELS FOR RFID

Previous results indicated that the acceptance does not only focus on the simple utilization of an application, but also refers to many individual, social, organizational, technical, economic, task-related, psychological as well as cultural indicators. This situation is the same for implementing and using RFID technologies within organizations. The introduction of such technologies does not only change individual habits but also involves organizational adaption. The following section attempts to identify such indicators in various steps. Afterwards it will be checked which model considers them best and therefore seems the most appropriate in order to evaluate the acceptance of an RFID-based document management system in libraries.

Levels	Acceptance Indicators
Individual Level (user)	<ul style="list-style-type: none"> - Perceived benefits - Perceived usability - Job relevance - Capabilities & Skills
Task-related Level	<ul style="list-style-type: none"> - Improvement of the work results - Acceleration in accomplishing tasks - Traceability of productivity - Task characteristics
Organizational Level	<ul style="list-style-type: none"> - Integration and implementation methods in the company - Rationalization measures - Organizational adaption - Restructuring measures - Integration of benefits
Technical Level	<ul style="list-style-type: none"> - Maturity level of the technology - System configuration - Degree of standardization - Awareness level of the technology - Other companies experiences - General user-optimization - Modularity
Economic Level	<ul style="list-style-type: none"> - Productivity - Acquisition costs - Maintenance costs - Monetary benefits - Ability to retrofit
Social Level	<ul style="list-style-type: none"> - Network effects - Synergy effects - Opinion leadership
Cultural Level	<ul style="list-style-type: none"> - Cultural sensitivity - Mentality
Psychological Level	<ul style="list-style-type: none"> - Enhancement of motivation - Enhancement of self-esteem - Improvement of the individual output - Safety in the work routine
	<ul style="list-style-type: none"> - Fear of job loss - Insecurity during the accomplishment of tasks - Individual readjustment burdens

Figure 4. Assignment of the acceptance indicators according to the levels

A. Identification of relevant acceptance levels

First of all representative acceptance levels will be detected, which may have an impact on the introduction and the utilization of this technology. As a result possible acceptance indicators will be classified more precisely. At the same time it was attempted to derive behavioral psychological and work psychological dimensions. The agreement on the acceptance levels is based on discussions within two workshops carried out with a project team. After having evaluated current acceptance models and other researches, eight possible levels have been concluded in Figure 3.

Individual level: All of those factors that may affect the acceptance of an application, both positively and negatively, at the level of each individual can be found here. Two of the

key factors within this level are the *perceived benefits* and the *perceived usability* of an application or a system.

Task-related level: All of those aspects that could have a positive or negative impact on the acceptance of an application and are linked to the task, which needs to be accomplished, are being subsumed in this section. After having analyzed the models cited above, the *improvement of the work results* or the *acceleration in accomplishing tasks* could be mentioned as examples in this context.

Organizational level: a further level to be considered is the organization in which a system is being introduced. The establishment of an RFID technology may result in great *human and structural actions*, such as *rationalization* or *department mergers*.

Technical level: in order to accept a technology or a system, the development of this technology is extremely

important. In this context, the acceptance is influenced by the awareness and maturity level of the applied technology.

Social level: every indicator, which explains how the acceptance within a collective such as a group of users or a organization can be influenced, is being summarized here. In this regard, the so-called network effect is a strong influencing factor. It may be assumed that the acceptance of a system is positively affected if a large number of users has already adopted it [10]. The opinion leadership can also have a great impact on acceptance. This indicates the extent to which an individual is able to influence his social environment [11]. The opinion leadership originates from the marketing theory and can be associated with the reference value model [12].

Cultural level: The consideration of cultural aspects in matters of the acceptance is also required. The cultural sensitivity is of great importance. This means considering country-specific characteristics such as adapting oneself to the mentality of the country for instance [13]. Therefore, the reaction to the introduction of a new system could turn out quite differently in Europe and in Asia.

Economic level: In addition to the dimensions mentioned above, economic aspects are also very important, especially for the management. The focus in this context is the profitability of such actions. Therefore, potential costs such as acquisition or maintenance costs need to be contrasted with the benefits, which are expected by introducing a new technology. A positive result of this analysis could contribute to the acceptance within the corporation.

Psychological level: This level mainly includes factors that are usually not directly visible and measurable. They are rather results due to the changes within the other dimensions. An example could be a department merger, which provokes the fear of job loss and therefore affects employees psychologically. These indicators can have a positive or negative impact on the acceptance.

B. Model evaluation with the help of acceptance indicators

In order to determine which model fits best to evaluate the acceptance of RFID supported document management

systems, an evaluation matrix with an adequate rating scale was established for every identified level mentioned above. This approach made it possible to establish a ranking of the applicable models within the framework of this paper.

The following scale has been chosen for the 35 accumulated indicators in order to evaluate the ten examined acceptance models:

- 0 = No consideration
- 1 = Poor consideration
- 2 = Consideration
- 3 = Strong consideration

The mentioned rating scale was chosen for several reasons. In order to avoid a tendency towards the centre, a four-way specification was chosen on the one hand. On the other hand, however, a two-way specification (yes/no) did not seem adequate due to the fact that various models offer a lot of space for interpretation and adaptation.

C. Evaluation matrix

The evaluation of the model was carried out by every project member individually within the specified levels with the help of matrices. A subsequent group discussion compared the results and revealed contradictions. A final meeting with all participants completed the assessment. The results were satisfactory for all parties. Figure 5 indicates an example for the evaluation of the individual level.

The individual level is included in the DART approach according to Wehrmann and even stronger in the acceptance model according to Degenhardt. Degenhardt's model is focusing very effectively on individual characteristics. The DART model allows a flexible design of these features within the scope of the sub-dimensions and the process model. The poor performance of the customer satisfaction model according to Silberer et al. can be traced back to its origin. The remaining models cover the identified indicators only partially which explains the rather poor results.

Acceptance Indicators Acceptance Models	Maximum Number of Points Individual Level: 12				Obtained Points	Overall Results (%)
	Perceived Benefits	Perceived Usability	Job Relevance	Skills		
TAM (Davis)	2	1	1	1	5	41,6
Acceptance Model (Degenhardt)	3	2	3	2	10	83,3
TTFM (Goodhue)	2	1	1	2	6	50
Acceptance Model (Filipp)	1	2	1	2	6	50
Dynamic Acceptance Model (Kollmann)	2	2	0	1	5	41,6
Procedure Model (Herrmann)	1	1	1	2	5	41,6
TAM 2 (Venkatesh & Davis)	2	1	2	1	6	50
Acceptance Model for Knowledge Media (Simon)	3	0	3	1	7	58,3
Customer Satisfaction Model (Silberer et al.)	2	1	0	0	3	25
DART Approach (Wehrmann)	3	3	2	2 (3)	10 (11)	83,3 (91,6)

Figure 5. Evaluation matrix of the individual level

D. Determination of the overall results

After having evaluated every model by means of the acceptance levels and the included indicators, the obtained results will be visualized once again in order to get a better

comparison of each approach. Besides, the overall results will be calculated. One possibility is the evaluation of the results using the arithmetic mean [14]. Figure 6 indicates the obtained results employing an equal weighting for all levels.

Acceptance Levels Acceptance Models	Individual Level	Task-related Level	Organizational Level	Technical Level	Social Level	Cultural Level	Psychological Level	Economic Level	Overall Results	Ranking
DART Approach (Wehrmann)	83,3 %	83,3 %	80 %	76,2 %	88,8 %	66,6 %	80,9 %	80 %	79,89 %	1
TAM 2 (Venkatesh & Davis)	50 %	83,3 %	13,3 %	14,3 %	66,7 %	66,6 %	38,1 %	0	41,54 %	2
Acceptance Model (Degenhardt)	83,3 %	50 %	13,3 %	28,6 %	33,3 %	33,3 %	47,6 %	0	36,18 %	3
Acceptance Model (Filipp)	50 %	33,3 %	46,6 %	38,1 %	33,3 %	33,3 %	42,6 %	0	34,65 %	4
Procedure Model (Herrmann)	41,6 %	50 %	20 %	28,6 %	11,1 %	0	38,1 %	26,7 %	27,01 %	5
Acceptance Model for Knowledge Media (Simon)	58,3 %	50 %	26,7 %	23,8 %	22,2 %	0	33,3 %	0	26,79 %	6
Dynamic Acceptance Model (Kollmann)	41,6 %	16,6 %	26,6 %	9,5 %	33,3 %	0	33,3 %	40 %	25,11 %	7
Customer Satisfaction Model (Silberer et al.)	25 %	0	13,3 %	28,6 %	44,4 %	0	19,1 %	33,3 %	20,46 %	8
TTFM (Goodhue)	50 %	50 %	13,3 %	14,3 %	0	0	0	0	15,95 %	9
TAM (Davis)	41,6 %	25 %	6,7 %	4,8 %	0	0	19,1 %	0	12,15 %	10

Figure 6. Ranking of the acceptance models with the arithmetic mean

Figure 6 clearly indicates the superiority of the DART approach according to Wehrmann against the other acceptance models. This dominance is also reflected in the overall result at each level. The reasons for this advantage can be explained with the basic structure of the model. The high flexibility creates particularly high dynamic

extensibility and thus a great scope for interpretation at all levels. The TAM 2 model according to Venkatesh and Davis scores surprisingly well in the overall results. In addition to the comprehensive consideration of the individual level, which has been focused on already in the TAM model by Davis, the obtained result is due to a detailed elaboration of

external stimuli. This step was positively perceived on the task-related as well as the social level. According to the project team both approaches, the one according to Wehrmann as well as the TAM 2 model, allow the integration of cultural aspects sufficiently.

Having observed the first overall results it became clear that the equal weighting of all levels could lead to a falsification of the model rankings [15]. According to the project team, the reason might be a different degree of influence a single acceptance level might have on the acceptance of a technology such as RFID [16]. Therefore, a weighting of the levels was introduced based on the assessments, findings and experience of the project team. Those levels, which are highly relevant in this context, are assessed with a **weighting factor of three**. Levels, which have a different effect on the acceptance depending on the situation, will be assessed with a **weighting of two**. Lower levels, which are expected to have a low impact, will be assessed with a **weighting of one**.

The individual level has a decisive influence on the acceptance of an individual. This fact is also postulated in most models as a key factor. Thus, it is necessary to assess this level and its involved indicators with a **weighting of three**. The social level also plays an important role within the scope of this project. Hence, network effects, synergies

and opinion leadership could have a great impact on the acceptance or use in institutions such as law firms and libraries. Therefore it makes sense to assess these levels with a **weighting factor of three**. In this context the psychological level should also be assessed with a **weighting factor of three** since it has influence on all levels of acceptance. Due to its connection it plays an important role in the evaluation. The task-related, technical, organizational and economic level can have a completely different effect on the acceptance of an individual or a collective, depending on the institution, design and other conditions. This can be observed in the examined models in which they are not treated equally. In order to accentuate this fact, a weighting factor of two was assessed. The cultural level, a subordinate factor that should not be underestimated, is not being considered in any model. However, a **weighting factor of one** was assigned in order include the level in the evaluation model. Figure 7 illustrated the changes that have taken place in the ranking of the evaluated models. Although each acceptance model of Simon, Degenhardt, and Kollmann improve their values by more than three percent, the DART approach according to Wehrmann is still considered to be the best model in the analysis.

Overall Results after two Evaluations Acceptance Models	Overall Result Evaluation 1	Overall Result Evaluation 2	Alteration (%)
DART Approach (Wehrmann)	79,89 %	81,36%	+ 1,47 %
TAM 2 (Venkatesh & Davis)	41,54 %	41,82%	+ 0,28 %
Acceptance Model (Degenhardt)	36,18 %	39,43 %	+ 3,25 %
Acceptance Model (Filipp)	34,65 %	33,58 %	- 1,07 %
Acceptance Model for Knowledge Media (Simon)	26,79 %	30,13 %	+ 3,34 %
Procedure Model (Herrmann)	27,01 %	29,06 %	+ 2,05 %
Dynamic Acceptance Model (Kollmann)	25,11 %	28,33 %	+ 3,22 %
Customer Satisfaction Model (Silberer et al.)	20,46 %	23,11 %	+ 2,65 %
TTFM (Goodhue)	15,95 %	16,96 %	+ 1,01 %
TAM (Davis)	12,15 %	14,17 %	+ 2,02 %

Figure 7. Effects on the second evaluation of the model

III. FINAL EVALUATION

After a detailed analysis of the mentioned acceptance models, an examination has taken place in order to identify whether they were suitable for an evaluation of RFID-based document management system. As a result it became clear that the approach according to Wehrmann was offering the best conditions in almost every research area. This dominance is not only due to the overall results. The model

also achieved optimum values in those levels, which according to the project team had a great impact on the acceptance, as well. Furthermore an ideal organization based on the characteristics for evaluating the acceptance of RFID technology in law firms is admitted by the DART approach due to its high flexibility and modifiability. Based on these findings, the project team has opted for the DART approach according to Wehrmann. In the further progress of the project it is ought to adjust the basic structure of the model,

which was outlined in the literature, to the specific research circumstances in order to carry out a promising acceptance analysis. Based on this analysis of acceptance models, the DART model is being used as the basis for the actual analysis of the acceptance of RFID in lawyer's offices. Dimensions such as perceived network effects, perceived costs, and perceived benefits are being examined according to indicators such as investment costs or surface handling. As a result of analyzing the 10 acceptance models it can be stated that the DART model describes those indicators, which are necessary for the scenario of RFID in lawyer's offices, best.

In order to achieve generalization, it was ought to include structural, local and temporal limitations. Structural limitations affect the chosen research design. The analytical structure of this paper involves a study of scientific literature dealing with acceptance models in general. Additionally, it is being specialized by using four workshops until it reaches the complex issue of RFID in law firms. However, this approach is correct due to the very poor literature provided on evaluating the acceptance of RFID in law offices. Based on the lack of knowledge, the results may vary when applying different research designs.

Besides, the German legislation as well as the composition of the workshops need to be considered as an important reason of local limitations. Law firms and attorneys operating in different European countries or in other parts of the world are facing distinct legal standards and working methods. This is why the identified acceptance levels and indicators can be transferred only partially. The second limitation relates to the time circumstances during the investigation. Since there are no scientific studies related to RFID in law firms and the use of RFID technology in this environment, the declaration given by the experts only reflects their current opinion. However, the identified results are representative for these issues. It can be assumed that it is possible to transfer acceptance indicators on defined processes in law firms due to the legal actions in Germany and the rigid operations in this profession.

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